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THE FREIGHT CAR SITUATION

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Grain and lumber shippers have been particularly affected by freight car shortages in the past. This year may be no exception. In Service Order No. 1009 dated October 4, 1968, the Interstate Commerce Commission indicated, "That there are shortages of freight cars throughout the country...and that these shortages of freight cars are impeding the movement of agricultural...products...." The service order became effective on October 7, 1968, and, among other provisions, prohibits back-hauling empty boxcars to obtain a load and holding empty boxcars awaiting a load for more than 24 hours.

The factors contributing to periodic car shortages and the corrective measures that have been taken were discussed in the November 1966 Marketing and Transportation Situation (MTS-163). The purpose of this article is to indicate the changes in the demand for and effective supply of rail cars since 1966.

Expanding Demand for Cars

Continuing rapid growth in economic activity is probably the major demand factor bearing on the current car shortage. Gross national product has risen from a seasonally adjusted annual rate of \$795.3 billion in the third quarter of 1967 to \$870.8 billion for the same quarter of 1968. Reflecting economic growth, total ton-miles of intercity traffic have shown a steady increase since 1961 (table 11). Railway ton-miles have shown a similar growth except for 1967 when a 4-percent reduction in wheat, feed grain, and soybean exports reduced rail and barge loadings.

An estimated 3-percent increase over 1967 in U.S. production of grains and soybeans has increased the demand for transportation this year. The increase demand will continue into 1969.

Freight Car Numbers

The total supply of freight cars operated by class 1 railroads--82 percent of the Nation's freight cars--

declined more than 14,000 between 1966 and 1967 (table 12). Partially offsetting was an increase of about 8,700 cars owned by car companies and shippers, holding the net decline to slightly more than 6,000 cars during 1967.

Plain boxcars, still the principal car used in grain gathering, showed a total decline of more than 28,500 cars in 1967. This decline is part of a long-term trend. From 1957 through 1967, the number of plain boxcars decreased by 255,848. According to a publication of the Association of American Railroads (Statistics of Railroads of Class I in the United States, August 1968, page 9). Stock car numbers also declined during 1967, reflecting a decreased demand for rail transportation of live animals.

The number of freight cars owned by car companies and shippers increased from 1966 to 1967 by substantially more than 8,000 cars, of which 3,734 were covered hopper cars. Holdings of equipped boxcars and covered hopper cars by this category of owners also showed the greatest percentage increases.

Effective Capacity

Car numbers are not the only or necessarily the best measure of the railroads ability to carry freight. Table 12 shows that, despite the reduction in number of freight cars, total capacity increased by more than 2.4 million tons in 1967 over 1966. The net increase in capacity for all boxcars and covered hopper cars was 1.5 million tons. Many of the equipped boxcars, however, are designed to carry plywood or relatively fragile commodities and realistically should not be included in the grain-carrying fleet. Nevertheless, at a minimum, freight car capacity to carry grain (plain box and covered hoppers) increased approximately 6000,000 tons during 1967 (table 12).

a measurement of effective utilization of capacity to carry freight.

Table 11.--Estimated Freight Ton-Miles, Freight Volume, by Mode,
average 1950-59, annual 1960-67

Year	Railway	Motor vehicles	Inland waterways	Pipelines	Airways	Total ^{1/}
	Billions	Billions	Billions	Billions	Billions	Billions
Average:						
1950-59	610	225	194	188	0.486	1,218
1960	579	285	220	229	.778	1,314
1961	570	296	210	233	.895	1,310
1962	600	309	223	238	1.289	1,371
1963	629	332	234	253	1.296	1,450
1964	666	347	250	266	1.504	1,531
1965	709	388	262	306	1.91	1,668
1966	751	381	280	332	2.25	1,747
1967 ^{2/}	731	388	274	361	2.59	1,757

^{1/} Totals may not add due to rounding.

^{2/} Preliminary.

Compiled from Transport Economics and annual reports, Interstate Commerce Commission.

Effective Supply

Many factors other than number and capacity of railcars have a role in determining the effective supply of rail transportation. For example, in a November 1966 article in this Situation, it was noted that cars moved between stations only about 5 percent of the time. Also between 1951 and 1955, hot boxes (overheated bearings) caused freight cars to be stopped an average of 41 times per million car miles traveled. In addition, the article pointed out that 5 percent of the freight car fleet would be unserviceable at any single time, and the average speed of freight trains was only 18 mph. The net result was that freight cars, on the average, generated only 965 ton-miles per day during 1951-55 (table 13).

By 1967, the hot set-out rate had declined to 0.54 times per million car miles. The other indicators showed less dramatic improvement. As a result of increased capacity and improved operations, such as rate and service adjustment made to improve utilization, a freight car produced 32 percent more ton-miles during 1967 than the 1951-55 average. New efforts started

recently to keep track of freight cars by automatic car identification devices may result in further improvements of car utilization.

However, shippers have not taken full advantage of increased car capacities. In 1967, load weight as a percentage of capacity was slightly higher than the 1951-55 average but lower than the 1961-65 average (table 13). Other practices of carriers, shippers, and receivers affect the quantity of transportation services which can be obtained from a given car fleet.

The Graduated Per Diem Scale

Effective January 1, 1964, the Association of American Railroads instituted a graduated scale of per diem rates (daily rentals a railroad pays another for use of its cars). Based on the depreciated value of the car, these rates vary from \$2.16 for cars valued at \$1,000 or less to \$12.18 for cars valued at more than \$35,000. Although a variable per diem scale should tend to result in purchase by the industry of the number and kind of cars which would maximize profits, it affords no assurance that the best regional or commodity

Table 12.--Freight cars operated by Class I railroads, other railroads, car companies and shippers, December 31, 1966 and 1967

Type of car and year	Cars operated by 1/				Capacity of cars owned by Class I railroads 2/	
	Class I railroads	Car companies and shippers	Other railroads	Total	Average	Aggregate
	Number	Number	Number	Number	Tons	Tons
Plain box cars						
1966	454,761	1,387	8,613	464,761	51.7	23,554,478
1967	427,206	531	8,426	436,163	52.4	22,489,426
Percent change ..	-6.0	-61.7	-2.2	-6.2	1.4	-4.5
Equipped box cars						
1966	125,891	490	459	126,840	59.8	7,490,660
1967	139,067	938	872	140,877	61.1	8,375,821
Percent change ..	10.5	91.4	90.0	11.1	2.2	11.8
Covered hopper cars						
1966	105,027	24,366	788	130,181	81.2	8,404,663
1967	118,960	28,100	893	147,953	85.8	10,128,724
Percent change ..	13.3	15.3	13.3	13.6	5.7	20.5
Refrigerator cars						
1966	49,016	68,905	441	118,362	59.8	2,841,902
1967	51,705	65,664	687	118,056	61.3	3,183,833
Percent change ..	5.5	-4.7	55.8	-0.2	2.5	12.0
Stock cars						
1966	19,078	567	---	19,645	40.8	790,713
1967	16,531	346	---	16,877	40.3	672,254
Percent change ..	-13.4	-39.0	---	-14.1	-1.2	-15.0
All freight cars						
1966	1,496,579	302,758	26,847	1,826,184	61.4	91,440,684
1967	1,482,161	311,418	26,566	1,820,145	63.5	93,861,099
Percent change ..	-1.0	2.9	-1.0	-0.3	3.4	2.6

1/ Yearbook of Railroad Facts, 1968 Edition, Association of American Railroads.

2/ Statistics of Railroads of Class I in the United States, Association of American Railroads, August 1968.

distribution of cars will exist at any point in time. Nor is there any assurance that the railroad industry's optimum coincides with that of grain or any other segment of shippers.

Table 14 shows a marked increase in purchases of relatively expensive rolling

stock since 1964. Since the number of plain box cars has continued to decline, the graduated per diem scale apparently has facilitated, to some extent, investment in specialized cars to meet shipper's demand, rather than in more general-purpose cars.

Table 13.--Measures of trends in freight car performance, averages 1951-55, 1961-65, annual 1966 and 1967

Item	Unit	Average 1951-55	Average 1961-65	1966	1967 ^{1/}
Average load per car	Tons	41.9	46.8	50.1	51.3
Load as a percentage of capacity	Pct.	78.0	81.8	81.6	80.8
Average speed of freight trains	M.p.h.	18.0	20.1	20.3	20.3
Hot box set-out rate per million car miles	---	<u>2/</u> 41.3	1.23	.59	.54
Unserviceable freight cars as a percentage of total	Pct.	5.1	6.7	4.4	4.6
Net ton-miles per car day	---	965	1,106	1,310	1,277
Centralized traffic control truck - December 31	Miles	<u>3/</u> 28,428	41,048	44,758	46,100

^{1/} Preliminary.^{2/} Year 1955.^{3/} December 31, 1955.

Yearbook of Railroad Facts, 1968 Edition, Association of American Railroads.

Table 14.--Annual increase in numbers of selected freight car types operated by Class I railroads, 1961-1967

Annual change from--	Special service boxcars	Covered hopper cars	Refrigerator cars
	<u>Number</u>	<u>Number</u>	<u>Number</u>
1961 to 1962	5,789	3,492	1,403
1962 to 1963	9,257	3,838	3,908
1963 to 1964	9,609	7,952	3,557
Average change	8,218	5,094	2,956
1964 to 1965	21,664	9,338	5,580
1965 to 1966	22,461	12,971	6,213
1966 to 1967	11,769	14,634	2,599
Average change	18,631	12,314	4,797

Statistics of Railroads of Class I in the United States, Association of American Railroads, August 1968.

